PROJECT SENSORHUB

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STARTING POINT

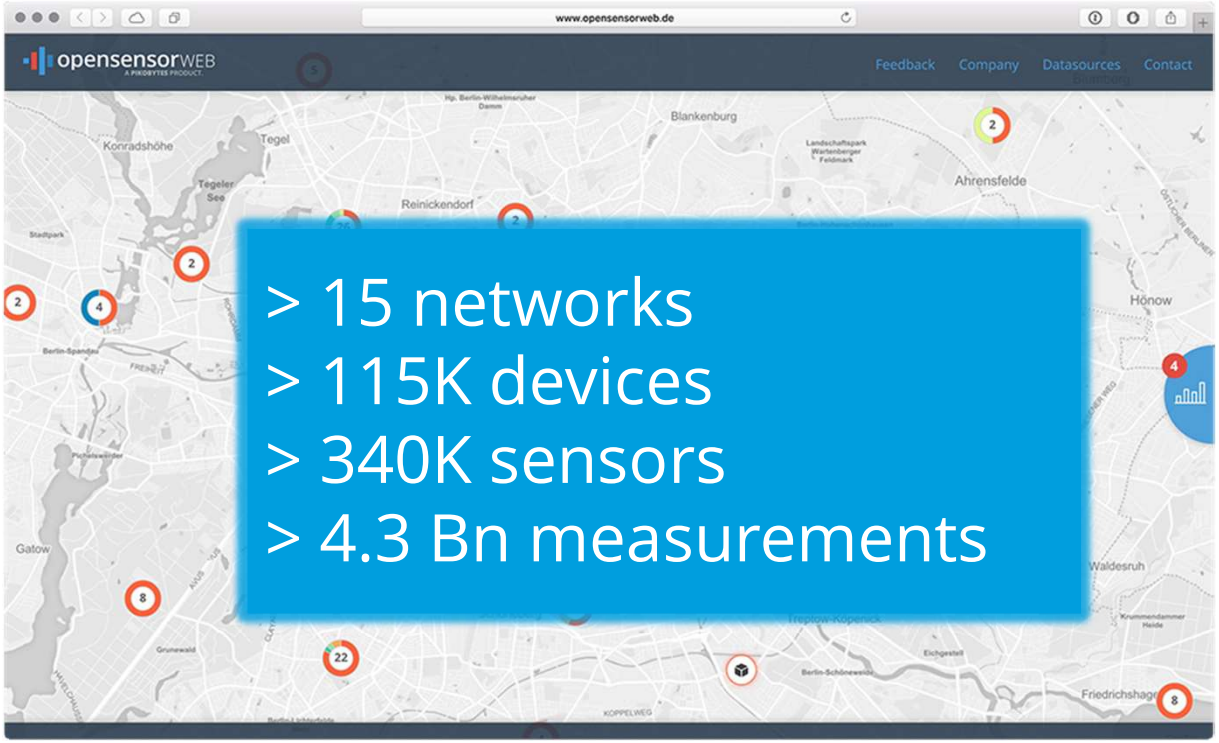
“The ultimate goal with Big Data is to collect, store, find meaning, and extract value from data. [...] As things stand now, the data ecosystem is highly fragmented. **Between those who create data and those who could potentially extract value from it sits a labyrinth fraught with complexity, disparity, and miscommunication.**” – Cisco IBSG, 2012

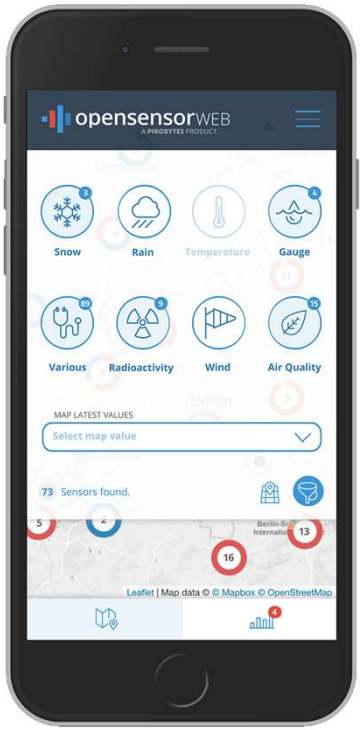
OUR VISION

Environmental data at YOUR finger tips

- A data-driven perspective on our natural and built environment
- Democatized access to environmental data
- Inform and educate citizens and organizations to make better, evidence-based decisions

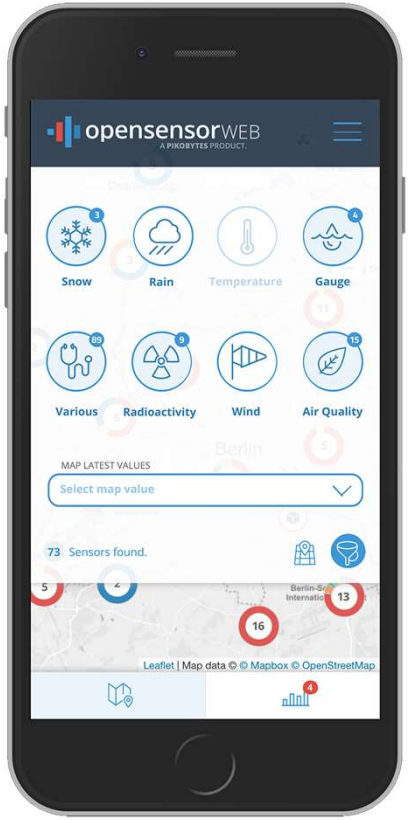
SENSORHUB / OPENSENSORWEB





OPENSENSORWEB – FEATURES

- Rich data: A **data integration platform** for local environemental data for Germany, Europe and the World
- Convenient **search** and data **exploration** functions
- **Harmonized data** formats
- Extemely fast access to **time series data**
- Modern user interface and APIs



TIME SERIES DATABASE

- High throughput
  - Fast writes (400k inserts / second) *
  - Ultra fast reads (8M measurements per second) *
- High compression (< 1 byte / measurement)
- Storage of "true" values (0.35 != 0.35000000000000003d)
- Interval-algebra (we don‘t generalize time intervals to instants)
- Exact on-the-fly aggregation and generalization
  - SUM, AVERAGE, including MIN/MAX spans
- Runs on commodity hardware, horizontally scalable

* single node, single threaded

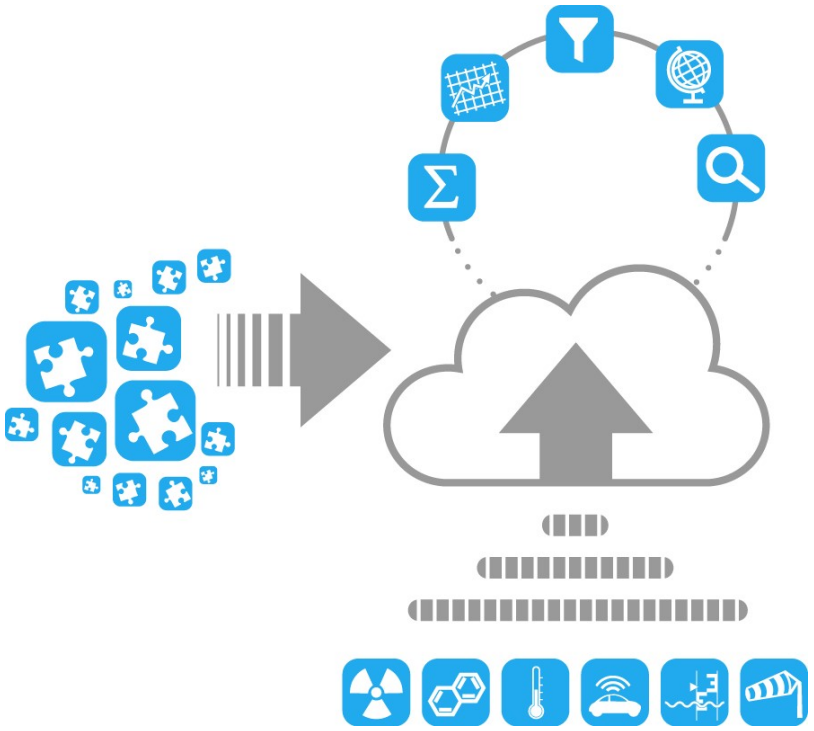
INTERACTIVE CHARTS AND MAPS

- Optimized for large amounts of data (or low bandwidth)
- Ultra fast chart interaction with many large time serieses
- We only request what we render
  - No need to query data at 1-minute resolution when you display daily averages or sums
  - Hyrbid server- and client-side clustering and filtering of sensor locations and phenomenons
- Progressive Webapps for Mobile and Desktop
- Areal interpolation in WebGL

ROADMAP

- September 2017:
  - Revised taxonomy of environmental phenomenons
  - Final UI design and interaction
- October 2017: OpenSensorWeb public release
- ~ February 2018:
  - Data acquisition (a bigger data pool)
  - Additional visualisation and data filtering capabilities
- ~ 2018+:
  - Live monitoring (for network operators)
  - Machine learning
  - Crowd sensing

TOWARDS DATA PRODUCTS



- Integrated and harmonized Environmental Sensor Data
- Derived Analyses (densified data, regression models, trends, forecasts)
- Growing data pool for data mining and machine learning projects

WE ARE LOOKING FOR PARTNERS WITH …

- Integration challenges
  - Interesting (big) data archives!
  - Sensor infrastructures sending live data
- Technical challenges
  - Partners that challenge our technology stack
  - … or want to combine it with existing data management systems
- Feedback and whishlists

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